USSR   UDC 621.317.799:537.311.33 (088.8)

ASI, A.A., TOOMSOO, G.K.

"Method Of Measurement Of Temperature Of P-N Junction Of Semiconductor Device"

USSR Author's Certificate No 305524, filed 13 Sept 68, published 16 July 71
(from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B376P)

Translation: A method is proposed for measurement of the temperature of a
p-n junction of a semiconductor device (which has a controlled avalanche
formation in the reverse direction) by supply of a measuring current to the
junction, measurement of the voltage, and determination of the temperature
by means of calculations. With the object of increasing the precision of
measurement, a measuring current of constant magnitude corresponding to a
regime of avalanche breakdown is passed in the reverse direction.

1/1

USSR

UDC: 621.382:621.317.799

ASI, A. A., TOOMSOO, G. K.

"A Method of Measuring the Temperature of an Electron-Hole Junction in a Semiconductor Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 18, Jun 71, Author's Certificate No 305524, Division H, filed 13 Sep 68, published 4 Jun 71, p 178

Translation: This Author's Certificate introduces a method of measuring the temperature of an electron-hole junction in a semiconductor device which has controllable avalanche formation in the reverse direction. The procedure involves sending a measurement current through the junction, measuring the voltage, and calculating the temperature. As a distinguishing feature of the patent, measurement precision is improved by passing a current corresponding to avalanche breakdown in the reverse direction through the junction.

1/1

- 83 -

USSR

UDC: 621.375.82

RUBINOV, A. N., ASIMOV, M. M.

"Time Dependence of Amplification in a Solution of Rhodamine-6G With Lamp Stimulation"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 108-110

Abstract: The time dependence of amplification is measured for an ethanol solution of Rhodamine-6G stimulated by standard flash lamps with pulse duration of 80 µs. The maximum amplification factor is attained considerably before the stimulating pulse reaches its maximum. It is experimentally shown that when the chemical purity of the solution is inadequate, reversible absorption arises in place of amplification, which can be attributed to the increased probability of singlet-triplet conversion. Two illustrations, bibliography of eleven titles.

1/1

TITLE--PACKING OF MACROMOLECULES IN POLYMERS -U-

AUTHOR-(03)-SLONIMSKIY, G.L., ASKADSKIY, A.A., KITAYGORODSKIY, A.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOLOMOL. SOEDIN., SER. A 1970, 12(3), 494-512

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MACROMOLECULE, POLYMER, SPECIFIC DENSITY, ISOMER, CALCULATION, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1189   STEP NO--UR/0459/70/012/003/0494/0512

CIRC ACCESSION NO--AP0116654

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116654
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PACKING FACTOR (K) OF 70
VARIOUS ALIPHATIC AND AROMATIC POLYMERS WAS CALCD. (K EQUALS
0.664-0.697). THE PACKING D. OF VARIOUS AMORPHOUS AND PARTIALLY CRYST.
POLYMERS WAS QUITE SIMILAR IN THE 1ST APPROXN. SUBSTITUTION OF POLAR
GROUPS FOR NONPOLAR ONES LED TO INCREASED D., PRESUMABLY DUE TO
INCREASED MASS RATHER THAN VOL. CONTRACTION. THE D. OF THE POLYMERS WAS
CALCD. FROM CHEM. STRUCTURE DATA OF THE REPEATING UNIT, WHICH OFFERED A
MEANS FOR PREDICTING THE PROPERTIES OF A POLYMER PRIOR TO SYNTHESIS.
ISOMERIC POLYMERS WERE SUBDIVIDED INTO 2 GROUPS, VIZ., ISOMERS HAVING
IDENTICAL INTRINSIC VOL, AND ISOMERS HAVING DIFFERENT VOLS. THE LATTER
POLYMER HAD MARKEDLY DIFFERENT PROPERTIES. FACILITY: INST.
ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

CIRC ACCESSION NO--AP0111491
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LOW TEMP. POLYCONDENSATION OF
3',3 PRIME,DIHYDROXYBENZIDINE AND OF 4,4 PRIME, DIHYDROXY, 3,3 PRIME,
DIAMINODIPHENYL SULFONE WAS CARRIED OUT WITH P,(P,CLCOC SUB6 H SUB4 O)
SUB2 C SUB6 H SUB4, P,(P,CLCOC SUB6 H SUB4 S) SUB2 C SUB6 H SUB4, AND
(P,CLCOC SUB6 H SUB4 S) SUB2 TO GIVE POLYAMIDES (I). SUBSEQUENT
DEHYDRATION OF I GAVE POLYBENZOXAZOLES (II, WHERE R IS DERIVED FROM THE
DIACID CHLORIDE AND R PRIME1 IS DERIVED FROM THE DIAMINE). THE PRESENCE
OF O, S, OR SO SUB2 BRIDGES IN II INCREASES THE TEMP. RANGE IN WHICH II
RETAIN THEIR ELASTICITY, INCREASES THEIR TENSILE STRENGTH AT BREAK AND
ELONGATION AT BREAK.

UNCLASSIFIED

1/2   020   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--HEAT RESISTANCE OF POLYMERS -U-

AUTHOR-(03)-SLONIMSKIY, G.L., ASKADSKIY, A.A., MZHELSKIY, A.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(5), 1161-79

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL STABILITY, MATHEMATIC EXPRESSION, HEAT RESISTANT
  PLASTIC, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1262   STEP NO--UR/0459/70/012/005/1161/1179

CIRC ACCESSION NO--AP0134936
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0134936
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT RESISTANCE OF POLYMERS IS
DISCUSSED IN QUANT. MATH. TERMS. THE SHAPE CONSTANCY, STRESS
DISTRIBUTION, AND STRESS PRESERVATION ARE THE MAIN STABILITY PARAMETERS.
EQUATIONS WERE DEDUCED WHICH EXPRESS THE RELATION BETWEEN THESE
PARAMETERS AND TEMP.   FACILITY: INST. ELEMENTOORG. SOEDIN.,
MOSCOW, USSR.

UNCLASSIFIED

A

Acc. Nr AP0048827 Abstracting Service: Ref. Code
                    CHEMICAL ABST.   5-76 UR0459   3

90903k Synthesis and behavior of poly(methylenephthal-
ide). Vinogradova, S. V.; Salazkin, S. N.; Korshak, V. V.; Chala-
idze, G. Sb.; Slonimskii, G. L.; Askadskii, A. A.; Mzhel'skii, A. I.
(Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomol. Soe-
din., Ser. A 1970, 12(1), 205-13 (Russ). The title polymer (I) was
prepd. by bulk, emulsion, and soln. polymn. of methylenephthal-
ide (II) in the presence of peroxides or BF₃·HCONMe₂. II was
also thermally polymd. in HCONMe₂ in air at 60° to give I of

(I)
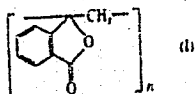
higher mol. wt. than I obtained similarly under argon. Increas-
ing the temp. to 80° had no effect on the I yield and viscosity. I
with reduced viscosity 0.5-0.7 dl/g (0.5% HCONMe₂, 25°) was
obtained by soln. polymn. of II in the presence of Bz₂O₂ or
(NH₄)₂S₂O₈. Soln. polymn. of II was solvent-sensitive. I with

REEL/FRAME
19800591

AP0048827

max. reduced viscosity (0.85 dl/g) was obtained by polymn. of II in HCONMe$_2$ at 70° in the presence of BF$_3$.HCONMe$_2$. Increasing the reaction time raised the I yield sharply. II was also bulk copolymd. with other monomers, esp. styrene, acrylonitrile, and Me methacrylate, in the presence of Bz$_2$O$_2$ to give high yields of copolymers with high reduced viscosity. All copolymers were solids, sol. in the same solvents (CF$_3$CO$_2$H, Me$_2$SO, etc.) as I. I had softening point 300° and good thermal stability.   DBJR

LO

19800592

ASKADSKIY A.A.

101534u Plastic antifriction material. Korshak, V. V.; Vino-
gradova, S. V.; Slonimskii, G. L.; Gribova, I. A.; Chumaevskaya,
A. N.; Krasnov, A. P.; Fomina, Z. Ya.; Askadskii, A. A. (Insti-
tute of Heteroorganic Compounds, Academy of Sciences,
U.S.S.R.) Brit. 1,179,400 (Cl. C 10m). 28 Jan 1970. Appl. 29 Jun
1967; 3 pp. Antifriction materials with little self-adhesion and
low coeff. of friction were prepd. by compression molding polyes-
ters contg. >3% P with 30-70% MoS₂ and powd. Cu fillers.
Thus, a 0.5-0.5-1.0 isophthaloyl dichloride-MePOCl₂-phenol-
phthalein mixt. was polycondensed in a chlorinated diphenyl sol-
vent at 220° and 4.0 g of the polyester obtained was blended with
6 g MoS₂ and 4 g powd. Cu for 3-5 min before compression mold-
ing at 220-50° and 1000-1500 kg/cm². Polyesters contg. P were
also prepd. by condensing terephthaloyl chloride with phenol-
phthalein and p,p'-methylphosphinylidenebis(benzoyl chloride)
and were used either alone or were blended with phenolphthalein-
phenol-formaldehyde resins.   CQPN

REEL/FRAME
19811028

ASKADSKIY A.A.

Acc. Nr.	Abstracting Service:	Ref. Code
AP0045179	CHEMICAL ABST. 5-90	UR0191

91225c Physicomechanical properties of adhesive cyanacrylate compositions. Korshak, V. V.; Polyakova, A. M.; Mager, K. A.; Semyantsev, V. N.; Askadskii, A. A.; Gerashchenko, Z. V. (USSR). Trst. Massy 1970, (1), 44-5 (Russ). Adhesive compns., e.g., Et α-cyanoacrylate (I), Pr α-cyanoacrylate, Bu α-cyanoacrylate, and allyl α-cyanoacrylate were modified with plasticizers and thickening agents. Addn. of 20% ethylene glycol dimethacrylate or diallyl phthalate reduced the elastic modulus of poly(ethyl α-cyanoacrylate) (II). Addn. of 20% di-Bu phthalate and 10% II to I compns. gave adhesives of superior adhesive bond strength and low elastic modulus. Some monomers were also effective as plasticizers of adhesive compns. Best results were obtained with 20% Et α-cyanosorbate.   CKJR

REEL/FRAME

19780079

Mining

USSR

UDC:550.93

BIGAYEVA, A. R., KHUSNUTDINOV, R. I., ASKAROV, E. A.

"The Accuracy of Determination of the Absolute Age of Geological Formations by the K/Ar Method"

Tashkent, Uzbekskiy Geologicheskiy Zhurnal, No. 6, 1970, pp. 20-23

Abstract: The potassium-argon method, based on determination of the quantity of radiogenic Ar^{40} accumulated in a specimen since its formation as a result of natural decay of K^{40}, is one of the most widespread methods of determining the absolute age of geological formations. This article presents mathematical formulas for determination of the relative mean square error in the measurement of absolute age. This error is found to depend on the mean square errors in determination of Ar^{40} and K. Another formula indicates the dependence of mean square error on age with identical measurement errors for the contents of the two materials. The error decreases with increasing specimen age.

1/1

Ion Exchange

USSR

NAZIROVA, R. A., DZHALILOV, A. T., FATKHULLAYEV, E., and ASKAROV, M. A.,
Tashkent Polytechnical Institute

"Study of the Properties of Ion Exchange Membranes Based on Furance Ion
Exchange Resins"

Abstract: Thermal stability of ion exchange membranes obtained from furan
ion-exchange resins was investigated by means of the thermographic and
thermogravimetric method. It was established that such membranes are highly
stable in water -- up to its boiling point. In the air they were heat re-
sistant up to the temperatures of 100 to 120°C.

1/1

Ion Exchange

USSR   UDC 661.182.12.62.278.572.772.2

ASKAROV, M. A., DZHALILOV, A. T., NAZIROVA, R. A., FATKHULLAYEV, E.

"Synthesis of Interpolymer Ionite Membranes of Furan Ionites"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 2, 1972, pp 43-45.

Abstract: Heterogeneous membranes based on furan ionites have good mechanical strength and thermal stability but insufficient electrochemical properties. In order to produce ionite membranes with good mechanical strength, thermal stability and high electrochemical properties, the authors synthesized interpolymer membranes by molecular combination of polyelectrolytes with thermoplastic polymers. The basic condition of synthesis of the interpolymer membranes is selection of a common solvent for the polyelectrolyte and inert polymer providing for their molecular combination. Interpolymer membranes are distinguished from heterogeneous membranes by their high exchange capacity and electrochemical properties. Thus, the interpolymer membranes produced, due to their high physical-chemical and electrochemical properties, can be used in processes of demineralization of water on electrodialysis installations.

1/1

TITLE--COPOLYMERIZATION OF ACRYLONITRILE WITH AMINO ESTERS OF
ALPHA,BETA,UNSATURATED ACIDS -U-

AUTHOR-(02)-ASKAROV, M.A., MALTSEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(1), 31-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, ACRYLONITRILE, AMINE DERIVATIVE, ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1837   STEP NO--UR/0291/70/014/001/0031/0034

CIRC ACCESSION NO--AP0123626
                            UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--RADICAL EMULSION POLYMERIZATION IN THE PRESENCE OF A BENZOYL
   PEROXIDE AMINATED POLYSTYRENE BINARY INITIATING SYSTEM IN AN ALKALINE
AUTHOR-(03)-TRUBITSYNA, S.N., RUZMETOVA, KH.K., ASKAROV, M.A.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(2), 67-70

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--EMULSION POLYMERIZATION, BENZOYL PEROXIDE, POLYSTYRENE RESIN,
   METHYL METHACRYLATE, POLYMETHYLMETHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0922   STEP NO--UR/0291/70/014/002/0067/0070

2/2   016   UNCLASSIFIED   PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0123626

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE KINETICS WERE STUDIED AND THE
   REACTIVITY RATIOS (R), SP. ACTIVITY FACTORS (Q), AND POLARITY FACTORS
   (E) WERE DED. OF THE COPOLYMN. BETWEEN H SUB2 C:CHCN (I) AND H SUB2
   CH SUB2 CH SUB2 NR SUB2 (R IS ET, BU, OR PH).   FACILITY: INST.
   KHIM., TASHKENT, USSR.

CIRC ACCESSION NO--AP0137950
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYSTYRENE (I) OF MOL. WT. 14.5
TIMES 10 RPIME3 AMINATED WITH PYRIDINE WAS USED AS AN EMULSIFIER IN THE
POLYMN., IN AN ALK. MEDIUM, OF ME METHACRYLATE AT 20DEGREES IN THE
PRESENCE OF BZ SUB2 O SUB2. THE SYSTEM BZ SUB2 O SUB2 AMINATED I WAS AN
ACTIVE INITIATOR; IN THE ALK. MEDIUM THE CARBINOL BASE OF AMINATED I WAS
FORMED WHICH REACTED WITH BZ AUB2 O SUB2 GIVING BENZOATE RADICALS
INITIATING THE POLYMN. SYNDIOTACTIC STRUCTURE OF OBTAINED POLY(ME
METHACRYLATE) WAS CONFIRMED BY IR ANAL.; ITS GLASS TRANSITION TEM. WAS
120DEGREES AND M.P. 240DEGREES.   FACILITY: TASHKENT. POLITEKH,
INST., TASHKENT, USSR.

UNCLASSIFIED

USSR   UDC 620.179.16

ASKAROV, M. A.,   YAKUSHKO, G. YE.,   BEZHANOV, R. A.

"An Ultrasonic Defectoscope for the Automatic Monitoring of Large-Diameter Pipes"

Translation: In the article is described an ultrasonic defecto-scope for the automatic monitoring of large-diameter (up to 219 mm) pipes with a wall thickness from 6 to 20 mm, intended for the detection of defects (cracks, pits, foliations, etc.) with dimensions in excess of 2-3 mm. The device has chambers with seeking heads, self-adjusting along the pipe surface; acoustic contact is created by a liquid fed into the chambers, and the de-fect is registered by an automatic monitor. Note is taken of the high resolving power of the seeking heads, which are provided with

1/2

USSR

ASKAROV, M. A., et al, Trudy Tbilisskogo Nauchno-Issledovetel'-
skogo Elektrotekhnicheskogo Instituta, No 5, 1970, pp 81-85
(from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya
Tekhnika, No 7, 1970, Abstract No 7.32.972)

cylindrical lenses, the focal lines of which are mutually per-
pendicular. The permissible monitoring speed is up to 28 m/min.
4 figures.

2/2

USSR

RAKHIMDZHANOV, A. R., Professor, ASKAROV, Sh. A., and ZIMON, T. S., Department of Neuropathology, Tashkent Institute for the Advanced Training of Physicians

"Polyneuritis in Chlorophos Poisoning"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 5, 1971, pp 67-69

Abstract: Three cases of intoxication with chlorophos (dipterex-a cholinesterase inhibitor) are described. Two young girls drank it with suicidal intent and a 34-year-old male drank it unintentionally. All 3 developed the characteristic symptoms of acute poisoning with nausea, vomiting, and unconsciousness. Polyneuritis began to be manifested 6, 16, and 24 days after ingestion of the insecticide. Pain appeared in the gastrocnemius. Weakness developed in the lower legs and feet and, in one case, in the hands. The achilles tendon and patellar reflexes were absent. Two patients experienced hyperesthesia in the feet and lower legs. Treatment with vitamins, stimulants, physical methods, exercise, and massage resulted in improvement but not complete recovery. One case is described in some detail.

1/1

USSR

ASKAROVA, S. A., KHODZHIBAYEVA, S. M., and AZIMKHODZHAYEVA, M. N.,
Department of Microbiology, Academy of Sciences Uzbek SSR

"The Effects of Polyene Antibiotics on the Production of Toxic Substances by
Verticillium Dahliae Fungus"

Abstract: The toxin which is secreted by Verticillium dahliae fungus and
which causes wilt of cotton and other plants is composed of several fractions,
the most toxic one being the brown pigment. Polyene antibiotics obtained
from Actinomycetes neutralize that toxin. Antibiotic 2,949 reduces the
activity of the various fractions without suppressing production. Anti-
biotics 18-80 and 18-45 inhibit both the activity and production of all
fractions. The best results are obtained with a mixture of all three anti-
biotics which totally inactivates the V. dahliae toxin. Cotton plants
treated with the mixture develop no wilt.

1/1

USSR

UDC 632.4.42/49A/z

KRASIL'NIKOV, N. A., KHODZHIBAYEVA, S. M., MIRCHINK, T. G., and ASKAROVA, S. A., Moscow State University

"Toxin Formation in Verticillium dahliae Strains Differing in Virulence"

Abstract: Toxin was isolated from four groups of V. dahliae strains differing not only in morphological and biochemical properties, but also in virulence. The most virulent was group II, followed by groups III, IV, and I. The toxicity of the concentrates was tested by immersing cut cotton shoots in solutions of various dilutions. Toxin from group II wilted the plants in a 1:10,000 dilution, whereas the inhibiting effect of the other toxins was not manifested until 1:1000 and 1:100 dilutions were used. Thus, there is a relationship between the activity and virulence of the various groups of the agent of cotton wilt. V. dahliae toxin consists of several fractions, the most toxic being a cinnamon-brown pigment, which is produced by all four fungus groups.

1/1

ASKAR'YaN, G. A.

"The Movement of Particles in a Laser Beam (Supplement)"

Abstract: This note is a supplement to the article by Ashkin, translated
from Scientific American, which appears in this issue of the Journal.

     The primary purpose of the note is to discuss other forces acting on a
particle in a laser beam and to provide a brief description of methods for
calculating the relative values of these forces and the force of light
pressure. The purely electromagnetic forces on such a particle include a
gradient force and the force of light pressure. The relative values of these
forces depend on particle characteristics (size, index of refraction, etc.)
and on the strength, focus, frequency, etc., of the laser light.

     If some light is absorbed by the particle or the medium, there are other
forces: direct convection (if the medium absorbs energy), radiometric
pressure (if the particle absorbs energy and heats the medium), and evapora-
tion from the particle itself.
1/2

· USSR

ASKAR'YaN, G. A., Moscow, Uspekhi Fizicheskikh Nauk, Volume 110, No 1, May 73, pp 115 - 116

It should be noted that evaporation from the particle can accelerate macroparticles to very high speeds (10^6 - 10^8 centimeters per second), while a very large gradient force can be used to accelerate electrons to ultra-relativistic speeds.

2/2

USSR   UDC: None

ASKAR'YAN, G. A. and MANUKYAN, S. D.

"Acceleration of Particles by a Moving Laser Focus, Focusing Front, or Ultra-Short Laser Pulse"

Abstract: This paper discusses the possibilities of using the high gradient of a laser light field to produce an acceleration gradient for electrons. The authors visualize the moving focus of the laser as a beam scanning transversely while its focus is varied longitudinally, with time, by a special lens. They also see the movement of the focusing front realized when various parts of the beam are focused at various points of the beam axis at different moments in time according to a definite law. The conditions for starting the particle acceleration from small initial velocities are considered, and the conditions for ultrarelativistic energy on the part of the accelerated particles are determined. It is shown also that it is possible to inject the particles into acceleration from a cloud of electrons or from a plasma generated by the action of the laser on a target. Finally, it is shown that the movement of the focus can be used for increasing the efficiency of acceleration

1/2

of macroscopic particles as well. Members of the P. N. Lebedev Physics Institute, USSR Academy of Sciences, the authors express their gratitude to Prof. M. S. Rabinovich for his comments.

2/2

USSR

ASKAR'YAN, G. A.; ARUTYUNYAN, I. N.; POGOSYAN, V. A. (Lebedev Physics Institute, USSR Academy of Sciences)

"Multiphoton Processes in the Focus of a Powerful Laser Beam with Allowance for Expansion of the Active Volume"

Abstract: A multiphoton process in the focus of laser radiation or near the focus points of individual modes is considered. It is shown that for high radiation densities saturation and expansion of the active volume occur. This appreciably modifies the dependence of the number of events on the field strength, $N(E)$ E^K: in particular, in very strong fields N E^3 and does not depend on quantization of the process. Various types of field distribution -- e.g., a cone with a focus constriction or a Gaussian radial distribution -- are considered. Results and conclusions of experiments on multiphoton ionization of atoms and molecules by a laser beam are critically considered. It is noted that the results obtained can be employed for determining the initiating volume of multiphoton ionization in a flash of light.

1/1

- 47 -

USSR

ASKAR'YAN, G. A., MIKHALVICH, V. G., SHIPULO, G. P., Physics Institute imeni
P. N. Lebedev, Academy of Sciences, USSR

"Nonlinear Scattering and Self-Focussing of Intense Light by Perturbations of
the Medium Near Absorbing Inhomogeneities"

Abstract: A study is made of the refraction of intense light by a halo
originating in the transparent medium surrounding an absorbing inhomogeneity.
A new effect is observed: namely, self-focussing of the light by an inhomogene-
ity in the medium. Experiments were conducted in the beam of a continuous
yttrium-garnet (YAG -- ND) laser. For visualization of the process, a beam of
red light from a helium-neon laser was added to the invisible beam. Scattering
and shuttering of the beam, increasing in time due to an absorbing particle in
water or in plexiglass, as well as self-focussing in various types of optical
glass. The dynamics of the process are investigated by means of motion-picture
color photography. Note is taken of the practical significance of the observed
effects of nonlinear light scattering by halos near inhomogeneities in natural
media (water, air) and in optical and laser elements (platinum particles in
1/2

USSR

ASKAR'YAN, G. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
No 4, 1971, pp 1270-1272

neodymium glass, carbon particles in a ruby, particles in liquid media, etc.)
which limit the transmission of high intensities. These effects may also be
used for the pulsed scattering, reflection, or modulation of intense light.
3 figures. 6 bibliographic entries.

2/2

USSR

ASKAR'YAN, G. A., POGOSYAN, V. A., Physics Institute imeni P. I. Lebedev, Academy of Sciences, USSR

"The Heat Track and Self-Focussing of a Powerful Beam in a Medium"

Abstract: A solution of an unsteady equation of heat propagation during the ab-
sorption of a powerful beam of specific profile with an intensity dip near the
axis is obtained and investigated. The dynamics of formation and the profile
of nonlinear variations of the refractive index of the medium are investigated.
Self-focussing conditions for the near-axial part of the beam are obtained for
the case of heat flow in time and space. It is shown that unsteadiness of the
process is essential for self-focussing. Unsteadiness provides for satisfaction
of the conditions of self-focussing at any moment of time in a continuously de-
creasing near-axial region. 16 bibliographic entries.

1/1

ASKAR'YAN G.A.

VIII. LASER SIMULATION AND RELATED EFFECTS

Askar'yan, G. A., and S. D. Mandzhyan, Acceleration of particles by a moving laser focus, focusing front, or ultrashort laser pulse front, ZhETF, v. 62, no. 6, 1972, 2156-2160.

An analysis is given of several ways in which the high field gradient in a laser pulse can be used to accelerate electrons or ions in a controlled fashion. If the mean force exerted on a particle in an e-m field of amplitude E_0 (r) and frequency ω is expressed as

$$f = -\frac{e^2}{2m\omega^2} \nabla(E^2)_{ave}$$

then it can be shown that, for example, a neodymium laser generating nanosecond pulses in the 30 Gw range will produce an effective field E_{eff} of approximately 1 Mv/cm, while a picosecond pulse of 3×10^3 Gw will yield 100 Mv/cm. Gradients of this magnitude when given a controlled lateral displacement (swept beam) or axial displacement (change in focal point or beam divergence) can in theory be used for selective particle acceleration. One method for doing this would be programmed refocusing of annular portions of the laser wavefront; using corresponding portions of a focusing lens; another would be a programmed refocusing of the beam along a selected path. In the latter case it is shown that a channel with reduced nonlinear absorption can be generated for charged particle motion. In the case of low coulomb attraction between electrons and ions, electrons would essentially be accelerated as if free; at sufficiently high coulomb forces an ion acceleration component would appear. In conclusion the authors suggest that the moving-focus technique could be extended to provide macroscopic particle acceleration.

USSR

ASKAR'YAN, G. A.; SAVCHENKO, M. M.; STEPANOV, V. K. (Lebedev Physics Institute, USSR Academy of Sciences)

"Diamagnetic Moment of a Strong Shock Wave from a High-Temperature Light Explosion in Gases"

ABSTRACT: Extensive experimental material is presented pertaining to an investigation of diamagnetic perturbations of a strong shock wave from a light spark in various gases at different pressures. A theoretical description of the phenomenon is given on the basis of the theory of strong shock waves. It is shown that a long life of the diamagnetic moment indicates a high temperature of the process in the light spark. Experiments on reflection and focussing of a shock wave and on its cumulative effect on the fire ball of the light spark are carried out with the aim of repeated use of a dense hot plasma. Some new possible effects of interaction between a strong magnetic field and the shock

1/2

USSR

ASKAR'YAN, G. A., et al., Zhurnal Eksperimental'noy i Teoreti-
cheskoy Fiziki, Oct 70, pp 1133-1145

wave plasma are described. Practical applications of the results obtained are
mentioned.

The authors express their gratitude to Professor Yu. P. Rayzer for his
discussion of the results and L. A. Lapin, V. P. Logvinenko, and I. N. Arutyun-
yan for their aid in the work.

The article includes four figures. There are 13 bibliographic references.

2/2

USSR

ASKAR'YAN, G. A.; et al (Lebedev Physics Institute, USSR Academy of Sciences)

"Nonlinear Effects with the Passage of a Powerful, Continuous Light Beam through a Medium"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; December, 1970; pp 1917-8

ABSTRACT: The passage of a light beam from a continuous neodymium-doped yttrium garnet laser through a medium is studied. The wave length of the light is 1 micrometer; and the power of the light beam, up to 30 watts. Media whose refractive indices have a negative derivative with respect to temperature and which defocus rays of ordinary profile (e. g., water and plexiglass) are investigated. Self-focussing of a ray with a low intensity near the axis (so-called "banana" self-focussing) is obtained for vertical or horizontal passage through water and plexiglass. "Combined" focussing of a ray by the thermal track of another ray is investigated; in this case the red ray of a gas laser was sent along the track of a pipe-shaped infrared ray and focussed in this way. A "tinting" technique is employed for making the nonlinear reaction of powerful, invisible infrared rays visible. For this purpose a visible ray of the same profile is added. Practical applications are indicated.

1/1

Acc. Nr: AP0038036

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 133-134

THERMAL SELF-FOCUSSING IN A LIGHT BEAM WITH LOW INTENSITY NEAR THE AXIS

Askar'yan, G. A.; Chistyy, I. L.

Thermal self-focussing in a strong light beam with a low intensity near the axis is investigated. A blue light beam from a 0.3 W continuous argon laser was employed. Self-focussing was particularly pronounced in methylene iodide, alcohol solution of iodine and other liquids. It is shown that self-focussing of the inner part of the beam occurs under stationary conditions with different regimes of convection (vertical and horizontal rays were investigated). Movement of the liquid destroys self-focussing. Black-white and color photographs and moving films of the process have been made.

REEL/FRAME
19731078

USSR

ASKAR'YAN, G. A.; ARUTYUNYAN, I. N.; POGOSYAN, V. A. (Lebedev Physics Institute, USSR Academy of Sciences)

"Multiphoton Processes in the Focus of a Powerful Laser Beam with Allowance for Expansion of the Active Volume"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; March, 1970; pp 1020-4

Abstract: A multiphoton process in the focus of laser radiation or near the focus points of individual modes is considered. It is shown that for high radiation densities saturation and expansion of the active volume occur. This appreciably modifies the dependence of the number of events on the field strength, $N(E) \sim E^K$: in particular, in very strong fields $N \sim E^3$ and does not depend on quantization of the process. Various types of field distribution -- e.g., a cone with a focus constriction or a Gaussian radial distribution -- are considered. Results and conclusions of experiments on multiphoton ionization of atoms and molecules by a laser beam are critically considered. It is noted that the results obtained can be employed for determining the initiating volume of multiphoton ionization in a flash of light.

1/1

Acc. Nr: AP0043690

Ref. Code: UR 0056

SELF-FOCUSING AND FOCUSING OF ULTRASOUND AND HYPERSOUND IN METALS AND SEMICONDUCTORS

Askar'yan, G. A.; Pustovoyt, V. I.

Propagation of intense ultrasound and hypersound waves in metals is considered.
The possibility of self-focusing is demonstrated and the conditions for its existence
are elucidated. It is shown that in a number of metals of practical interest the velocity
of sound decreases upon heating; this leads to self-focusing and focusing of the sound
waves as a result of heating of the medium near the surface by the factor producing
the intense sound wave (modulated laser or electron beam). The sound velocity may
also decrease during absorption of the sound wave itself. Mechanisms of variation of
the velocity of sound in a semiconductor due to heating are analyzed. It is shown that
appreciable changes may occur as a result of variation of the carrier concentration.
Some practical applications of the effects which influence conditions of destruction of
metals are indicated. Some possibilities of explaining the anomalies in propagation of
sound and destruction of the media in the focusing regions are discussed.

REEL/FRAME
19770094

2/ PI

MULTIPHOTON PROCESSES IN THE FOCUS
OF A POWERFUL LASER BEAM WITH ALLOWANCE
FOR EXPANSION OF THE ACTIVE VOLUME

Arutyunian, I. N.; Askar'yan, G. A.; Pogosyan, V. A.

A multiphoton process in the focus of laser radiation or near the focus points of the modes is considered. It is shown that for high radiation densities saturation and expansion of the active volume occurs. This appreciably modifies the dependence of the number of acts on the field strength, $N(E) \sim E^h$; in particular in very strong fields $N \sim E^3$ and does not depend on quantization of the process. Various types of field distribution, e.g. a cone with a focus constriction or a Gaussian radial distribution are considered. Results and conclusions of experiments on multiphoton ionization of atoms or molecules by a laser beam are critically considered. It is mentioned that the results obtained can be employed for determining the initiating volume of multiphoton ionization in a light spark.

REEL/FRAME
19770185

ASKEROV, A.A.

Medicine - Underwater Sports

MEDICAL SUPERVISION IN THE PURSUIT OF
UNDERWATER SPORTS

CONTENTS

PAGE

- a -

[I - USSR - C]

USSR

GANIYEV, M. K., ASKEROV, A. A., MIRZA-ZADE, S. R., and DASHDAMIROV, D. M.

Pasterelllz (Pasteurellosis), Baku, "ELM," 1970, 268 pp

Translation: Table of Contents:

1/4

USSR

GANIYEV, M. K., et al., Pasterelllz, Baku, "ELM," 1970, 268 pp

2/4

USSR

GANIYEV, M. K., et al., Pasterelllz, Baku, "ELM," 1970, 268 pp

3/4

USSR

GANIYEV, M. K., et al., Pasterellez, Baku, "ELM," 1970, 268 pp

4/4

USSR   UDC 621.315.592

ASKEROV, B.M.

"Kinetics Effects In Semiconductors"

Kiniticheskiye effekty v poluprovodnikakh (cf. English above), Leningrad, "Nauka,"
1970, 303 pp, ill., 1 r 60 k (from RZh--Elektronika i yeye primeneniye, No 11,
November 1970, Abstract No 11B14K)

Translation: An account is given of contemporary theories of galvanomagnetic and
thermomagnetic phenomena in semiconductors. The cases of parabolic and nonparabolic
zones are considered, as well as zones with many minima. Much consideration is
given to the quantum theory of kinetic effects. The effect is taken into account
of the nonparabolicity of the conductance zone on the kinetic effects in quantizing
the magnetic field. The basic conclusions of the Shubnikov-de Gaaz theory of oscill-
ations, and of magnetophonon oscillations, are discussed in detail. The quantum
theory is developed for the Nernst-Ettinghausen effect. An account is given of
the classic and quantum theories of galvanomangetic and thermomagnetic phenomena
which involves all models of the energy zone that are significant in practice.
25 ill. 11 tab. 365 ref. Annotation.

1/1

USSR   UDC 8.74

ASKEROV, CH. I., IBRAGIMOV, T. A., POPOV, A. S.

"Minimizing the Flow Charts of Algorithms Considering the Shift Distribution of the Operators"

V sb. Teor. kibernetika (Cybernetics Theory—collection of works), Kiev, 1971, pp 17-23 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V425)

Translation: A study is made of a method of minimizing the flow charts of algorithms considering the shift distribution of the operators. The flow chart represents a branched algorithmic process and contains the initial and final apex and the operator and logical apexes. By the preceding operator apexes we mean those from which there are paths in the flow chart not containing the operators leading to the given apex. By the shift distribution of the operators we mean the defined dependence of the logical apexes on the operator apexes. The corresponding minimization algorithm is presented which consists in the following. First, the apexes isolated from the beginning of the flow chart are eliminated. Then for each logical apex the operator apexes preceding it on the flow chart are found: if there are no such logical apexes on the paths from them, they are recorded in a list; if they exist, then depending on the situation the counter and the specially introduced characteristic of trafficability of the paths of the

1/2

USSR

ASKEROV, CH. I., et al., Teor. kibernetika, Kiev, 1971, pp 17-23

logical apex assume the corresponding values; if the counter is equal to 2 (over-
flow), then the following logical apex is investigated; otherwise for each opera-
tor apex the list is checked to see whether the given logical apex belongs to
the shift distribution. After investigating the entire flow chart, the entire
process is repeated until the flow chart remains unchanged. It is noted that
a similar problem of minimization can be stated for the algorithm flow chart.
The program developed for the M-20 computer can operate in this case faster
since the algorithm flow chart can be more tightly packed in the computer memory.

2/2

USSR   UDC: 8.74

ASKEROV, Ch. I., GAMIDOV, V. I., IBRAGIMOV, T. A.

"Minimization of the Number of States of a Microprogram Automaton"

V sb. Avtomaty i upr. setyami svyazi (Automata and Control of Communications
Networks—collection of works), Moscow, "Nauka", 1971, pp. 142-153 (from RZh-
-Kibernetika, No 4, Apr 72, Abstract No 4V526)

Translation: There are various interpretations of logic systems of algo-
rithms (LSA) in terms of finite automata distinguished by the fact that
put into correspondence with each internal state are either the individual
positions of the LSA, or the individual members or a group of simultane-
ously realized members of the LSA, or a group of consecutively realized
members of the LSA which form a complex microcommand. In this paper, a
method is proposed for forming complex microcommands with minimization
of their number; this is accompanied by a slight increase in the number
of checks of the logic conditions. Authors' abstract.

1/1

- 36 -

USSR   UDC: 51:621.391

ASKEROV, Ch. I.

"Simplifying the Flowcharts of Algorithms With Regard to a Given Distribution of Shifts"

V sb. Diskretn. avtomaty i seti svyazi (Discrete Automata and Communications Networks--collection of works), Moscow, "Nauka", 1970, pp 65-69 (from RZh--Kibernetika, No 1, Jan 71, Abstract No 1V392)

Translation: A method is proposed for simplifying algorithm flowcharts with regard to a predetermined distribution of shifts. The simplification is done directly on the flowcharts, which makes the method suitable for programming. From the given distribution of shifts and transformational formulas, a set of logical conditions is found for each operator of the algorithm flowchart which always take on a definite value after the given operator is performed. Then for each term z_i of the algorithm flowchart, a set of operators u_i is found from which z_i may be reached by a route which does not contain operators. Depending on the sets found, the element z_i may either be struck out of the algorithm flowchart or replaced by ω. This is an iteration process; operation of the algorithm is terminated when the preceding step does not have a single strike-out or substitution of ω for the terms of the algorithm flowchart.

1/1

USSR   UDC: 51:621.391

ASKEROV, Ch. I., IBRAGIMOV, T. A.

"Simplifying the Flowcharts of Algorithms With a Given Set of Unused Col-
lections and Distribution of Shifts"

V sb. Diskretn. avtomaty i seti svyazi (Discrete Automata and Communications
Netwcrks--collection of works), Moscow, "Nauka", 1970, pp 70-73 (from RZh-
-Kibernetika, No 1, Jan 71, Abstract No 1V393)

Translation: The authors discuss a method of simplifying the flowcharts of
algorithms. The procedure is based on accounting for unused collections of
values of the variables (logical conditions), and also on accounting for a
given set of distributions of shifts. The method of simplifying algorithm
flowcharts consists in finding for each logical condition a function which
takes on the true value for those collections of any permissible sequence of
collections on which this logical condition may be verified. The simplifi-
cation is done on the algorithm flowcharts, which makes it more convenient
for computerization. Accounting for unused collections and the distribution
of shifts makes it possible to reduce the overall number of logical opera-
tions. In some instances this may mean that certain terms of the algorithm
flowchart are unrealizable and therefore may be eliminated. C. Blokhina.

1/1

USSR

ASKEROV, Ch. L., IBRAGIMOV, T. A.

"Simplification of Algorithm Flow Charts for a Given Set of Unused Sets and Given Shift Distribution"

Translation: A method of simplifying algorithm flow charts based on consideration of unused sets of values of variables (logical conditions) and a given set of shift distributions (N_i^0, N_i^1) is investigated. The procedure for simplifying the algorithm flow charts consists in finding the function $(p_j t^t)^*$ for the logical condition $p_j t^t$. This function must assume the true value in the sets (from any allowable series of sets) in which the logical condition $p_j t^t$ can be checked. Consideration of the unused sets and the shift distribution permits reduction of the total number of logical conditions. An example

1/2

- 67 -

USSR

ASKEROV, Ch.I., et al., Diskretn. avtomaty i seti svyazi (Digital Automata and Communications Networks -- Collection of Works), Moscow, Nauka Press, 1970, pp 70-73

of simplification of algorithm flow charts is presented. The bibliography has 4 entries.

2/2

USSR   UDC 681.3.001:518.5

ASKEROV, Ch.I.

"Simplification of the Flow Charts of Algorithms Taking Into Account a Given
Shift Distribution"

V sb. Diskretn. avtomaty i seti svyazi (Digital Automata and Communications
Networks -- Collection of Works), Moscow, Nauka Press, 1970, pp 65-69 (from
RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 2, Feb 71,
Abstract No 2B31)

Translation: A method of simplifying algorithm flow charts taking into account
a given shift distribution is proposed. The simplification is carried out dir-
ectly on the algorithm flow chart, which operation greatly simplifies programming.
By means of the given shift distribution and the transfer formulas for each oper-
ator of the algorithm flow chart, a set of logical conditions is found which, af-
ter execution of the given operator, assume values which are always defined. Then,
for each member of the algorithm flow chart Z_i, a set of operators is found
from which it is possible to transfer to Z_i so that the corresponding path does
not contain operators. Depending on the sets found, the element Z_i can be

1/2

- 69 -

USSR

ASKEROV, Ch. I., Diskretn. avtomaty i seti svyazi (Digital Automata and Com-
munications Networks -- Collection of Works), Moscow, Nauka Press, 1970, pp
65-69

either excluded from the algorithm flow chart or replaced by the conditional
transfer symbol ω. This process is iterated until the flow chart element is
deleted   or replaced by ω. The bibliography has 12 entries.

2/2

TITLE--SYNTHESIS AND REACTIONS OF UNSATURATED ORGANOSILICON AND
ORGANOGERMANIUM COMPOUNDS. SYNTHESIS OF DIMETHYL,P,TOLYLHYDRIDOSILANE

AUTHOR-(04)-SHIKHIYEV, I.A., GASANOVA, R.YU., ASKEROV, G.F., RZAYEVA, S.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 817-19

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, ORGANOSILICON COMPOUND, ORGANOGERMANIUM
COMPOUND, ORGANIC SILANE, ACETYLENE, ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1199   STEP NO--UR/0079/70/040/004/0817/0819

CIRC ACCESSION NO--AP0128617
                    UNCLASSIFIED

CIRC ACCESSICN NO--AP0128617
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT.   ME SUB2 SICLH (94.5 G) AND RMGBE
FROM 24 G MG REFLUXED 2 DAYS GAVE AS SHCWN ON MICROFICHE.
FACILITY: INST. NEFTI KHIM. IM. AZIZBEKOVA, BAKU, USSR.

UNCLASSIFIED

USSR   UDC: 8.74

ASKEROV, T. M., FEYZULLAYEV, A. P.

"Principle of Organization of an Information System in a Sec-
toral Automated Control System"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Com-
puter Technology and Programming--collection of works), vyp.
7, Moscow, "Sov. radio", 1972, pp 83-93 (from RZh-Kibernetika,
No 8, Aug 72, Abstract No 8V625)

Translation: The paper describes the principle of organiza-
tion of an information system in a sectoral automated control
system. The principle is based on the method of logic scales.
The system is universal both from the standpoint of fields of
application, and from the standpoint of types of computers on
which it can be realized. The system is described on the
example of data collection for the machine building industry.
Authors' abstract.

1/1

USSR   UDC   621.396.946

FORTUSHENKO, A. D., ASKINAZI, G. B., BYKOV, V. L. et al.

"Fundamentals of Technical Planning of Artificial Satellite Communications Systems"

Osnovy tekhnicheskogo proyektirovaniya sistem svyazi cherez ISZ (cf. English above), Moscow, "Svyaz'", 1970, 331 pp, ill. 1 r. 52 k. (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10A119 K)

Translation: The authors describe the basic properties of satellite communications systems, their role and position among existing forms of communication, consider the organizational and technical principles of constructing systems, problems of system control, problems associated with the motion of artificial satellites in orbit, and frequency bands suitable for radio communications with satellites. Standards for qualitative indices are given and substantiated. A complete method for calculating the power indices of a communications system is given, and a procedure is developed for computing the parameters of high-frequency channels for lines of communication through artificial satellites. The book is intended for specialists in radio communications and may be of interest for teachers and students in radio engineering academies. 157 illustrations, 18 tables, bibliography of 97 titles. Annotation.

1/1

Acc. Nr:
APOO37010

ON PHYSIOLOGICAL MECHANISMS OF AMPLITUDE REGULATIONS OF VOLUNTARY MOVEMENTS IN MAN

Asknaziy, A. A.

Physical Culture Research Institute, Leningrad

The structure of precise movements was analysed. Mechanogram of the movement, its velocity (V) and acceleration (A), and the electromyogram (EMG) of the m. biceps and triceps brachii were recorded.

During the restricted movements the velocity quickly increases to the maximum and does not subsequently decrease. The mechanogram and its derivatives (V and A) were relatively constant in series of movements.

The voluntary reproductive movements, are characterized by simultaneous and higher EMG of antagonistic muscles during the whole abduction. The velocity increases and decreases more smoothly and to a lesser extent.

½

REEL/FRAME
19721942

2

AP0037010

The subject attained a very high precision in reproduction, the mistakes being not higher than 5%. However, there was a marked variability of the remaining parameters (V, A, Time, EMG). The parameters of a precise movement are, evidently, controlled during the action, and the precision of reproduction depends not only on perception and remembering of the amplitude but also on perfection of the controlling.

D. h.

19721943

Acc. Nr: AP0038114 A

Ref. Code: UR 0326

PECULIARITIES OF HYDRATION OF SEEDS OF VARIOUS COMPOSITION

Askochenskaya, N. A.

K. A. Timiriazev Institute of Plant Physiology, USSR Academy of Sciences, Moscow

; Aksenov, S. I.

and Biology-Soil Department, Moscow State University

Seeds of various species — pea (var. «Ranii zeleny») beans («Triumpf» var.), wheat, («Krasnodarskaya» and «Krasnozernaya» var.) — were studied by the nuclear magnetic resonance technique. It is found that in dormant seeds of all mentioned species when the moisture gradually grows from the original 10—15% to 20—22% in a water vapor atmosphere the seeds retain the two-component signal characteristic of dry seeds: on the other hand when the seeds swell addition of only 2—5% H_2O to the seed weight is sufficient to make the signal one-component. This might be an adaptive reaction of seeds to variation of moisture when the germination trigger mechanism becomes oprative under conditions of maximal water supply, such as occurs during spring floods.

On drying of the seeds water of the first, most bound fraction (at 105—110), which

1/2

REEL/FRAME

19731165

02

AP0038114

is characterized by a single compoent, disappears. Water of the second fraction can be removed from the seeds only with great difficulty even after heating to 120—130°. Vacuum drying without heating almost does not affect the water in the seeds, a result which is determined by peculiarities of the mechanism of water transfer in seeds. The magnitude of the signal from equal amounts of a solution and of seeds was compared and it was found that not all water in the seeds contributes to the resonance. Therefore a third fraction may exist (of hydrated water proper) as well as other fracions which are not recorded by NMR. A comparison of protein and carbohydrate seeds showed that in seeds with a predominance of carbohydrates (wheat) the NMR signal from both water fractions is greater, although the total amount of water is higher in the protein species (bean, pea plants). The latter therefore contain larger amouns of hydrated, strongly bound water which does not contribute to the resonance signal.

It is suggested that hydration in seeds is of a universal nature whereas water in seeds is specific and this ensures vitality of the seeds over prolonged periods of time.

19731166

USSR $\mathcal{A}$ UDC 669.18-147:611.746

RUTES, V. S., Doctor of Technical Sciences, CHIGRINOV, M. G., Candidate of
Technical Sciences, ASKOLDOV, V. I., Candidate of Technical Sciences, DALLAD,
E. R., Engineer, and TKACHEV, P. N., Engineer, Central Scientific-Research
Institute of Ferrous Metallurgy imeni I. P. Bardin

"Formation and Migration of Non-Metallic Inclusions During Continuous Steel
Pouring"

Moscow, Stal', No 10, Oct 70, pp 895-897

Abstract: A high-melting ZrO_2 tracer is introduced into the inwall to clarify
the principal sources of admission of non-metallic inclusions during continuous
steel pouring -- the inwall of the intermediate ladle, the residue of the
furnace slag, and also slag which forms as a result of secondary oxidation
of molten metal. An intensive flow of metal into the intermediate ladle, de-
termined by the falling stream, makes flotation of inclusions difficult. These
flows can be weakened at a sufficiently high level of metal -- on the order of
600-650 mm -- in the intermediate ladle.

1/1

USSR

RUTES, V. S., ASKOLDOV, V. I., LIBERMAN, A. L., SEMENOV, N. I., OSKOLKOV, N. A.,
Central Scientific Research Institute for Ferrous Metallurgy, "Amurstal'" Plant

"Economic Effectiveness in the Casting of Ship Steels Beneath a Level in a
Continuous Steel Casting Unit"

Moscow, Metallurg, No 10, Oct 70, pp 20-21

Abstract: Methods of protecting metal in a crystallizer from secondary oxidation
during casting of type 10KSND, 09G2S, 09G2, and other ship steels were studied.
The investigations showed that when casting was performed beneath a level of a
graphite-based mixture so that the surface of the metal was protected by the
heat-insulating mixture, the volume of cleaning of cast billets and of sheets
after rolling was reduced, and the rate of final rejection of sheets was de-
creased. The economic effectiveness of this method is 4.7 rubles per ton of
steel.

1/1

USSR

RUBEZHANSKIY, Yu. A., and ASLAMOV, A. S., General Surgical Clinic,
Tselinograd Medical Institute

UDC: 617-001.17-022.08

"Complications of a Thermal Burn by Anaerobic Infection"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, Vol 106, No 4, Apr 71,
pp 111-112

Abstract: A patient was brought in with third and fourth-degree burns over
the left arm and the left half of the abdomen, a total of 26% of the body
surface. He was brought out of shock after two days and taken to the clinic
by airplane in serious condition. Anaerobic infection was suspected but no
bacteriological tests were made, which is regrettable. The patient was
treated by removal of the necrotic tissue and by transfusion of antigangrene
serum, blood and protein blood substitutes. In the course of three months,
five skin grafts were done as the wound cleansed itself of necrotic tissue.
In all, 1,350 square centimeters were grafted. At the beginning of the treat-
ment the arm was amputated at the shoulder and toward the end the ribs were
trepanned. At the time of discharge the scar was entirely covered by epithel-
ium.

1/1

USSR   UDC: 535.373.3

ASLANIDI, Ye. B., TIKHONOV, Ye. A., and SHPAK, M. T.

"The Quenching Mechanism of Fluorescent Organic Dye Solutions in Two-Photon Excitation"

Leningrad, Optika i Spektroskopiya, December 1972, pp 1105-1108

Abstract: A description is given of experiments to determine the mechanism of fluorescence quenching in organic dye solutions under two-photon excitation from a ruby laser. Three dyes of the xanthene group were used in the experiments; their solutions have a quantum fluorescence output of approximately unity, and the spectral position of their maximum long-wave absorption band corresponds approximately to resonance for two-photon absorption of a neodymium laser radiation. Curves plotted for the intensity of the fluorescence as a function of change in excitation power are found to deviate from the square law, and seven causes are listed and explained for this deviation. The diagram of the experimental setup is reproduced along with a textual explanation. It was found that the radiation intensity of the solution is strengthened at the fundamental frequency, thus confirming the presence of a phenomenon of forced emission at this frequency.

- 63 -

1/1

UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--MANIFESTATION OF A PATHOLOGICAL POINT IN THE SPATIAL DISTRIBUTION
OF HUMAN CORTICAL BIOPOTENTIALS -U-

AUTHOR--ASLANOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP
634-643

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOELECTRIC PHENOMENON, NEUROSIS, COMPUTER APPLICATION,
PATHOLOGY, CEREBRAL CORTEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1738   STEP NO--UR/0247/70/020/003/0634/0643

CIRC ACCESSION NO--AP0123541
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0123541

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPATIAL CORRELATION OF
BIOPOTENTIALS IN DIFFERENT REGIONS OF THE CEREBRAL CORTEX WAS STUDIED ON
PATIENTS SUFFERING FROM OBSESSIONAL NEUROSIS, BEFORE AND AFTER ANIMATION
OF THEIR PATHOLOGICAL DYNAMIC STRUCTURE (PATHOLOGICAL POINT) BY VERBAL
STIMULATION. CORTICAL ELECTRICAL ACTIVITY WAS STUDIED BY MEANS OF AN
ENCEPHALOSCOPE WITH 50 LEADS. CORRELATION OF BIOELECTRICAL ACTIVITY WAS
STUDIED IN PAIRS AT ALL THE 50 RECORDED CORTICAL POINTS. THE
COINCIDENCE OF DIRECTION OF CHANGES IN BIOPOTENTIAL OSCILLATIONS FROM
MOMENT TO MOMENT DURING A CERTAIN LENGTH OF TIME WAS USED AS CRITERION
OF CORRELATIVE RELATIONS. THE COEFFICIENTS WERE CALCULATED ON A
UNIVERSAL ELECTRIC COMPUTER. THE EFFECT OF WORDS "ANIMATING" THE
PATHOLOGICAL POINTS WAS, AS A RULE, ACCOMPANIED BY A FURTHER INCREASE OF
THE LEVEL OF SPATIAL SYNCHRONIZATION OF BIOPOTENTIALS. SYNCHRONIZATION
INCREASED ON A LARGE TERRITORY OF THE CORTEX, PARTICULARLY SO IN TIS
ANTERIOR PARTS. THE PREDOMINANT INVOLVEMENT OF THESE AREAS IN THE
CORTICAL RESPONSE TO A CONFLICTING WORD IMPLIED THAT THEY WERE MOSTLY
RELATED TO THE FORMATION OF MORBID SYMPTOMS. BIOELECTRICAL CHANGES,
WHICH ACCOMPANIED THE ACTIVATION OF THE PATHOLOGICAL DYNAMIC STRUCTURE,
WERE EXTREMELY STABLE. THEIR EXTENSIVE SPREAD ATTESTED THAT THE
PATHOLOGICAL POINTS SHOULD NOT BE CONSIDERED ROUGHLY ANATOMICALLY, FOR
THEY ARE COMPLEX DYNAMIC STRUCTURES, "CONSELLATION OF CENTRES",
SPREADING IN THE CORTEX.

UNCLASSIFIED

CIRC ACCESSION NO--AP0123541

ABSTRACT/EXTRACT--THE DATA OBTAINED SUGGEST THAT THE STUDY OF SPATIAL
SYNCHRONIZATION OF BIOPOTENTIALS OPENS UP NEW OPPORTUNITIES FOR STUDYING
HIGHER NERVOUS ACTIVITY IN NEURO PSYCHI DISEASES, NOTABLY THOSE WHOSE
APPEARANCE AND DEVELOPMENT IS LINKED WITH THE EXISTENCE OF PATHOLOGICAL
POINTS, OR PATHOLOGICAL DYNAMIC STRUCTURES IN THE CEREBRAL CORTEX.
 FACILITY: LABORATORY OF ELECTROPHYSIOLOGY OF CONDITIONED REFLEXES,
INSTITUTE OF HIGHER NERVOUS ACTIVITY AND NEUROPHYSIOLOGY, USSR ACADEMY
OF SCIENCES, MOSCOW.

UNCLASSIFIED

USSR

UDC 542.91:547.1'118

ABDUVAKHABOV, A. A., ZUPAROVA, K. M., GODOVIKOV, N. N., KABACHNIK, M. I., ASLANOV, Kh. A., and SADYKOV, A. S., Institute of Organoelemental Compounds, Academy of Sciences USSR, and Tashkent State University imeni V. I. Lenin, Tashkent

"The Synthesis of Some O-Ethyl-S-alkyl Alkylthiophosphonates"

Abstract: It was established in earlier work by the authors that the anticholinesterase activity of O-alkyl-S-alkyl methylthiophosphonates increases with an increasing length and degree of branching of the alkyls at O and S. However, the effect of the alkyl at P on the physiological activity of compounds of this type had not been studied. To carry out this study, the O-ethyl-S-butyl alkylthiophosphonates EtO(R)P(O)SBu (I; R = Et, n-Pr, n-Bu), O-ethyl-S-(beta-ethyl-mercaptoethyl) alkylthiophosphonates EtO(R)P(O)SC$_2$H$_4$SEt (II; R = Et, n-Pr, n-Bu), and methylsulfomethylates of II (III) were synthesized. O,O-Diethyl alkylphosphonates (EtO)$_2$P(O)R, which were prepared starting with diethyl phosphite as 1/2

USSR

ABDUVAKHABOV, A. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1659-1661

described in earlier work, formed the acid chlorides $EtO(R)P(O)Cl$ (IV on being reacted with PCl_5. IV, on being reacted with butyl-mercaptan and beta-mercaptodiethyl sulfide, yielded I and II, respectively. Compounds III were obtained by reacting II with dimethyl sulfate. The physical properties of the compounds synthesized are listed in tables.

2/2

USSR   UDC 547.944/945

ABDUSALAMOV, B. A., ASLANOV, KH. A., SADYKOV, A. S., and KHOROSHKOVA, O. A.,
Tashkent Order of the Labor Red Banner State University imeni V. I. Lenin

"Investigation of the Alkaloid Content of Sophora Japonica"

Abstract: The alkaloids were extracted from dried, ground seeds of Sophora
japonica L. After deoiling with petroleum ether, the seeds were treated
with a methanol solution of   potassium hydroxide, dried and extracted with
chloroform. After reextraction with sulfuric acid and alkalinization with
10% KOH, the material was again extracted with chloroform to yield a group
of eight alkaloids, from which it was possible to identify citizine,
N-methylcitizine, sophocarpine, and matrine.

1/1

USSR   UDC 539.194.536.27

YUNUSOV, T. K., LEONT'YEV, V. B., KAMAYEV, F. G., ASLANOV, KH. A., SADYKOV,
A. S., Tashkent Order of the Red Banner of Labor State University imeni
V. I. Lenin

"Conformational Conversions of Lupinin and Tropin Alkaloids During the
Formation of N-Oxides"

Abstract: Experiments were performed in which N-oxides of lupinin and tropin
were obtained under light conditions by mixing the initial bases with 5%
H_2O_2 at room temperature. Lupinin forms two isomeric N-oxides the separation
of which is realized by solubility, and the individuality is checked by
chromatography on a thin layer of Al_2O_3 (the benzene-ether-methanol system,

5:2:1).
         The infrared, mass and paramagnetic resonance spectral data indicate
that the first isomer N $\rightarrow$ O of lupinin has trans-conformation with a,a N $\rightarrow$ O,
the axial-CH_2OH group with an intramolecular hydrogen bond between > N $\rightarrow$ O

CH_2OH, and the second isomer, cis-conformation with a, e N $\rightarrow$ O, axial CH_2OH

1/2

USSR

YUNUSOV, T. K., et al., Khimiya Prirodnykh Soyedineniy, No 4, 1972, pp 477-483

and with an intramolecular hydrogen bond between $>N \rightarrow O$ and the CH_2OH fragments:

a,a $\qquad$ e,a

2/2

- 9 -
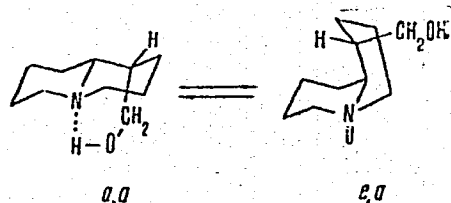
USSR

ASLANOV, KH. A., ISHBAYEV, A. I., INOYATOVA, K., YUSUPOV, SH., SADYKOV, A. S., and ZAKHAROV, V. P., Order of the Labor Red Banner Tashkent State University Imeni V. I. Lenin

"New Method for Isolation of the Anabasis Aphylla Alkaloids"

Abstract: A new method has been developed for isolation of individual Anabasis aphylla alkaloids from technical anabasin sulfate. Direct extraction of anabasine sulfate with chloroform yields aphylline, aphyllidine, and some anabasine. The major portion of anabasine and lupinine is obtained by converting them to nitroso derivatives followed by hydrolysis with 18% hydrochloric acid at 98-100°C. Also a modification was developed for production of the anabasine sulfate. The commonly used sulfation method required 40% H_2SO_4 at 70-80°C, leading to considerable hydrolysis of the alkaloids. This could be avoided preserving most of the alkaloids by the use of 40% H_2SO_4 at 50-60°C.

1/1

USSR

UDC 547.94 + 543.43

ISHBAYEV, A. I., ASLANOV, KH. A., SADYKOV, A. S., and RAMAZANOVA, M. A., Order of the Labor Red Banner Tashkent State University Imeni V. I. Lenin

"Study of the Quinolizidine Alkaloids by the Method of Optical Rotatory Dispersion (ORD). I. ORD of Lupinin, Citizin, Spartein Group of Alkaloids, and Aphylinic Acid"

Abstract: ORD curves of Spartein, Lupinin, Citizin group of alkaloids and some derivatives of aphylinic acid were studied. Among the group of α -pyridone ring containing compounds a higher molecular amplitude was exhibited by the opimers with a trans-quinolizidino junction of the nuclei than with the cis-isomers. It has been shown that alkaloids with a lactam group in the external ring have a higher molecular amplitude than corresponding compounds with an $>N-C=O$ group at the internal ring. A relationship has been shown between the form, sign and molecular amplitude of the curves and the type of a build-up of quinolizidine rings, as well as of the molecular rotation and the location of a double bond in ring A or D. The derivatives of Lupinin and aphylinic acid have a smooth curve with minor anomalies shifted towards longer wavelength in case of the aphylinic acid derivatives.
1/1

USSR

UDC 547.944/945

PRIMUKHAMEDOV, I., ASLANOV, KH. A., and SADYKOV, A. S., Tashkent Order of
the Labor Red Banner State University Imeni V. I. Lenin, Tashkent Pharma-
ceutical Institute

"Alkaloids From the Roots of Saphora Griffithii"

Abstract: After extraction with benzene and chromatography on alumina column,
roots of Sophora Graffithii yielded citizine, N-methylcitizine, and matrine.
All products were identified by comparative IR spectroscopy.

1/1

- 4 -

USSR   UDC 1 947

ABDUVANKHABOV, A. A., ASLANOV, Kh. A., SADYKOV, A. S., and INOYATOVA, K.,
Tashkent State University imeni V. I. Lenin

"Lupinine Esters of O-Alkylmethylphosphonic and O,O-Diethylthiophosphoric
Acids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 771-772

Abstract: To determine anticholinesterase activity, the authors synthesized
lupinine esters of phosphoric acids: O-ethyl-O-lupinanmethylphosphonate,
O-n-butyl-O-lupinanmethylphosphonate, O,O-diethyl-S-lupinanthiophosphate,
and iodomethylates of O,O-diethyl-S-lupinanthiophosphate and O-n-butyl-O-
lupinanthiophosphonate.

1/1

UDC 947.94

USSR

TOREMURATOV, K., ABDUVAKHADOV, A. A., ASLANOV, Kh. A., and SADYKOV, A. S.,
Tashkent State Univeristy imeni V. I. Lenin

"New Phosphorus-Containing Esters of N(β-ethoxy)-anabasine and Lupinine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 772-773

Abstract: Phosphorus esters of N(β-ethoxy)-anabasine and lupinine are synthe-
sized in a search for cholinolytics: (N(β-ethyl-0-diphenylphosphonyl)-
anabasine, methylsulfomethylate of N(β-ethyl-0-diphenylphosphonyl)-anabasine,
N(β-ethyl-0,0-isoamylmethylthiophosphonate)-anabasine, 0-diphenylphosphonyl
lupinine, and iodomethylate of 0-diphenylphosphonyl lupine. Some of the
physicochemical constants of these esters are tabulated.

1/1

- 50 -

USSR

UDC: 547.944.954

ASLANOV, KH. A., ZAYNUTDINOV, U. N., KUSHMURADOV, YU. K. and SADYKOV, A. S., Tashkent State University imeni V. I. Lenin, Tashkent, Ministry of Higher and Secondary Specialized Education UzSSR

"New Didehydro-Derivatives of Matrine /Isolupanine/ Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1970, p 381

Abstract: From matrine via 5-hydroxy-6,7-dehydromatrin, a matrine series didehydro-compound where double bonds encompass three or four optical centers was synthesized. Dehydration of 5-hydroxy-6,7-dehydromatrine with P_2O_5 by the Bol'man method led to a complex mixture of compounds, while dehydration in an n-xylol solution led to the matrine didehydroderivative with a 40% yield. This study suffests that in selecting conditions for hydrogenation of the didehydro product several new stereoisomers of matrine can be obtained.

1/1

UNCLASSIFIED   PROCESSING DATE--04DEC70

TITLE--PRODUCT OF THE CONDENSATION OF LUPININIC ACID WITH PIPERIDINE -U-

AUTHOR-(04)-ASLANOV, KH.A., KASYMOV, T.K., SADYKOV, A.S., ISHBAYEV, A.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (4), 492-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC ACID, ALKALOID, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0947   STEP NO--UR/0409/70/000/004/0492/0494

CIRC ACCESSION NO--AP0134668
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0134668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO A SOLN. OF 11 G LUPINIC ACID IN 120 ML PIPERIDINE WAS ADDED PORTIONWISE 46 G P SUB_2 O SUB_5 AND THE MIXT. REFLUXED 3 HR TO YIELD 75.5PERCENT D I (X EQUALS O, R EQUALS PIPERIDINO) (D II), B SUB_5 228-30DEGREES, (ALPHA) SUBD 54.2DEGREES (ETOH); PERCHLORATE M. 199-200DEGREES (H SUB_2 O); HCL SALT M. 114-15DEGREES (ME SUB_2 CO). II WAS HYDROLYZED BY 16 HR REFLUX IN 20PERCENT H SUB_2 SO SUB_4. II (3 G) IN 50 ML ET SUB_2 O WAS ADDED TO A WARM SOLN. OF 1 G LIALH SUB_4 IN 150 ML ET SUB_2 O AND THE MIXT. HEATED 3 HR TO YIELD D I (X EQUALS H SUB_2, R EQUALS PIPERIDINO) (D III), B SUB_{10} 158-60DEGREES, (ALPHA) SUBD 196.5DEGREES (ETOH); PICRATE M. 205-6DEGREES (ETOH). III WAS ALSO OBTAINED BY HEATING 3.9 G BROMOEPILUPINANE (D IV) AND 20 ML PIPERIDINE IN A SEALED TUBE AT 15-60DEGREES FOR 6 HR. A SOLN. OF 10 G D I (X EQUALS O, R EQUALS OH) IN 200 ML WAS SATD. WITH HCL FOR 8 HR, THEN KEPT 24 HR AND REFLUXED 4 HR TO YIELD 55PERCENT D I (X EQUALS O, R EQUALS OET) (D V), B SUB_4 139-40DEGREES, (ALPHA) SUBD 48DEGREES (ETOH). A SOLN. OR 4.7 G V IN 70 ML ET SUB_2 O WAS ADDED TO A WARM SOLN. OF 2 G LIALH SUB_4 IN 300 ML ET SUB_2 O AND THE MIXT. REFLUXED 4 HR TO YIELD 98.4PERCENT D I (X EQUALS H SUB_2, R EQUALS OH (D VI), M. 79-80DEGREES, (ALPHA) SUBD 36.8DEGREES (ETOH). TO A SOLN. OF 3.5 G D VI IN 60 ML C SUB_6 H SUB_6 WAS ADDED PORTIONWISE 15 G PBR SUB_5 AND THE MIXT. REFLUXED 2 HR TO YIELD 98.5PERCENT D IV, B SUB_2 126-30DEGREES (ALPHA) SUBD 61DEGREES (ETOH). LUPININE (11 G) WAS BROMINATED UNDER SIMILAR CONDITIONS TO YIELD 99PERCENT L IV, B SUB_2 126-30DEGREES, (ALPHA) SUBD MINUS 27.2DEGREES (ETOH); PICRATE M. 134-5DEGREES (H SUB_2 O).

UNCLASSIFIED

CIRC ACCESSION NO--AP0134668
ABSTRACT/EXTRACT--L III WAS OBTAINED SIMILARLY TO D III IN 97PERCENT
  YIELD, B SUB10 158-60DEGREES, (ALPHA) SUBD MINUS 37DEGREES (ETOH);
  PICRATE 113-14DEGREES (ETOH).   FACILITY: TASHKENT, GOS. UNIV.
  IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

1/2   045

TITLE--STRUCTURE OF EUPUPIUM TETRAKIS BENZOYLACETONATE USABLE FOR OBTAINING A LASER EFFECT -U-

UNCLASSIFIED

PROCESSING DATE--20NOV70

AUTHOR-(05)-ARISTOV, A.V., MASLYUKOV, YU.S., GRYAZNOVA, M.I., DOMRACHEV, G.A., ASLANOV, L.A.

COUNTRY OF INFO--USSR

SOURCE--TECH. EKSP. KHIM. 1970, 6(1), 61-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EUROPIUM COMPOUND, LUMINESCENCE SPECTRUM, X RAY STUDY, COMPLEX COMPOUND, LASER EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1176

IRC ACCESSION NO--AP0128598

STEP NO--UR/0379/70/006/001/0061/0066

UNCLASSIFIED

PROCESSING DATE--20NOV70

UNCLASSIFIED

IRC ACCESSION NO--AP0128598   ABSTRACT.   ET SUB2 NH SUB2 (EU(BZAC) SUB4)
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   ET SUB2 NH SUB2 (EU(BZAC) SUB4), WHERE HBZAC EQUALS BENZOYLACETONE
AND C SUB5 H SUB11 NH(EU(BZAC) SUB4), WHERE HBZAC EQUALS BENZOYLACETONE
AND C SUB5 H SUB11 NH PRIME POSITIVE EQUALS PIPERIDINIUM, WERE
SYNTHESIZED BY THE METHOD OF BHAUMIK (1964) AND THEIR LUMINESCENCE
SPECTRA WERE TAKEN AT 77DEGREESK.   STRUCTURES OF THE COMPDS. AND OF THE
(EU(BZAC) SUB4) PRIME NEGATIVE ION WERE DETD. BY X RAY STRUCTURAL ANAL.
SPLITTING OF THE GROUND STATE LEVEL FOR THE EU ION CORRESPONDS TO A C
SUB2 SYMMETRY BUT IT MAY ALSO BE DUE TO THE C SUB4 SYMMETRY OF THE EU0
SUB8 GROUP.   BOTH COMPLEXES GIVE A STABLE LASER EFFECT AT 613 NM WHICH
CORRESPONDS TO A TRANSFER FROM THE PRIME5 D SUB0 LEVEL TO THE X OR Y
COMPONENT OF THE PRIME7 F SUB2 LEVEL SPLIT BY THE CRYST. FIELD OF C SUB2
OR C SUB4 SYMMETRY.   FACILITY: MOSK. GUSUNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2   023
TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF ACIDIC GADOLINIUM TETRAKIS
  (BENZOYLACETONATE) -U-
AUTHOR--BUTMAN, L.A., ASLANOV, L.A., PORAYKOSHITS, M.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1) 46-53

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, MOLECULAR STRUCTURE, GADOLINIUM COMPOUND, X
  RAY STUDY, CRYSTAL LATTICE, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0313   STEP NO--UR/0192/70/011/001/0046/0053

CIRC ACCESSION NO--AP0103968
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0103968

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE STRUCTURE OF HGD(BA) SUB4
TIMES XPIP (X APPROXIMATELY EQUAL TO 1) WAS DETD. BY SINGLE CRYSTAL X
RAY METHODS, WHERE HBA IS (PHCO) SUB2 CH SUB2 AND PIP IS PIPERIDINE.
THE MONOCLINIC LATTICE PARAMETERS ARE A 31.568, B 20.214, C 10.692
ANGSTROMS, AND GAMMA EQUALS 138DEGREES 10 MINUTES; Z EQUALS 4, AND THE
SPACE GROUP IS B2-B. THE GD ATOM IS LOCATED ON A CRYSTALLOGRAPHIC 2
FOLD AXIS AND IS SURROUNDED BY 8 O ATOMS FROM 4 BA RINGS (GD-O EQUALS
2.38-2.42 ANGSTROMS). THE COORDINATION POLYHEDRON IS A TETRAGONAL
ANTIPRISM WITH THE RECTANGULAR FACES PARALLEL TO THE 2 FOLD AXIS. THE
PH RINGS OF THE BA IONS ARE ALMOST PARALLEL TO THE PLANES OF THE CHELATE
RINGS. THE CHELATE RINGS ARE FOLDED BY 26-29DEGREES ABOUT THE O-O LINE.
THE GD COMPLEXES ARE PACKED SO THAT THERE ARE CHANNELS BETWEEN THEM
WHICH CONTAIN THE DISORDERED PIPERIDINE MOLS. THE MOL. PACKING EXPLAINS
HOW PIPERIDINE IS LOST WITHOUT DESTROYING THE CRYSTALS.

USSR

UDC 621.4/.6:533.6

KOPEYKA, P. I., ASLANOV, S. K.

"On the Condensation of Water Vapor in the Mixing Zone of Satellite Gas Flows of High Velocity and High Temperature"

Fiz. aerodispers. sistem. Mezhved. nauch. sb. (Physics of Aerodispersion Systems. Interdepartmental Scientific Collection), 1971, No. 4, pp 106-116 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B411)

Translation: The flow of gas from an axisymmetric nozzle of finite dimensions into a satellite gas flow using the simplified design of G. N. Abramovich excluding the transition segment is considered. A solution is found for the plane problem of turbulent mixing of satellite gas flows of high velocity and high temperature. An expression is obtained for the axial velocity in the problem of the turbulent mixing of a jet injected from a point source with the satellite gas flow. The solution of these problems is applied to the actual problem of the flow from a nozzle of finite dimensions into a satellite gas flow. The position of the source is at the point of intersection of the external boundaries of the initial segment. The region of turbulent mixing

1/2

USSR

KOPEYKA, P. I., ASLANOV, S. K., <u>Fiz. aerodispers. sistem. Mezhved. nauch. sb.</u>,
1971, No. 4 , pp 106-116

can be fully calculated on the basis of these formulas. The parameters for
turbulent mixing that were found are applied to a calculation of the super-
saturation function along the axis of the tube. Authors abstract.

2/2

- 88 -

USSR

UDC 534.222.2

ASLANOV, S. K., KOPEYKA, P. I.

"Concerning the Characteristics of Detonation Spin Models in Different Hot Media"

Translation: Theoretical models of two possible modes for detonation combustion in a spin regime are constructed on the basis of gasdynamic relationships in the plane of the involute of the inner surface of the tube. Models consist of the leading process of the transverse detonation front of Chapman-Jouguet of finite extent and of wave configurations adjoining the ends of the transverse front that were generalized by the authors. It is shown that additional combustion (more than the limiting combustion) in the oblique Mach wave of the trinary generalized configuration with the reflected wave as a transverse Chapman-Jouguet configuration leads to decay of this configuration with the formation of some other complex of waves and the formation of another stationary spin

1/2

USSR

ASLANOV, S. K., KOPEYKA, P. I., *Fiz. aerodispersn. sistem*, No. 5, Kiev,
Kiev University, 1971, pp 101-106

scheme. The magnitude of energy release in the oblique wave is strongly
dependent on the composition of the mixture. A calculation of the parameters
of the nucleus of the spin detonation is in good agreement with experimental
data in the literature. 5 ref. Authors abstract.

2/2

USSR

UDC 532.517.4

KOPEYKA, P. I. and ASLANOV, S. K., Odessa State University imeni II Mechnikov

"On Turbulent Mixing at the Boundary of Adjacent High-Velocity, High-Temperature Gas Streams"

Kiev, Gidromekhanika, Akademiya Nauk Ukrainskoy SSR, No 21, 1972, pp 46-51

Abstract: Theoretical investigation of turbulent mixing of two semiinfinite high-velocity, high-temperature gas streams is performed. Compressibility is taken into account. Viscosity effects are neglected.

The analysis is based on the continuity equation and two energy equations. After several transformations the equations are put into the form of a Tollmin equation (21) and a differential equation (22), which are then solved using the boundary conditions.

The analysis results show that an increase of adjacent stream's velocity is equivalent to a decrease of its temperature and causes the decrease of the angle between the turbulent zone boundary and the line of contact.

1/1

USSR   UDC 534.222.2

ASLANOV, S. K., KOPEYKA, P. P., Odessa State University

"On Fulfillment of the Law of Conservation of Moment of Momentum in Spin
Detonation"

Kiev, Dopovidi Akademiy nauk Ukrainskoy RSR, Seriya A. Fiziko-tekhnichni
ta matematichni nauki, No. 9, Sep 71, pp 819-822

Abstract: Satisfaction of the law of conservation of moment of momentum is
discussed for spin detonation proposed by the authors as a model of the nucleus
that is an essentially generalized shock-detonation triple configuration. The
generalization consists of introducing into the triple shock-detonation con-
figuration a centralized rarefaction wave which follows the transverse detona-
tion wave of Chapman-Jouguet. The additional use of the kinetic moment theorem
made it possible to close the problem and determine theoretically the slope of
the incident shock wave to the transverse cross section of the tube. A cri-
terion for detonation yield was obtained for the spin regime. A computer
calculation was made for the flow in the region of the triple point of the
generalized shock-detonation configuration. All parameters of the gas flow

1/2

USSR

ASLANOV, S. K., KOPEYKA, P. P., Dopovidi Akademiy nauk Ukrainskoy RSR, Seriya
A. Fiziko-tekhnichni ta matematichni nauki, No. 9, Sep 71, pp 819-822

that were calculated are in good agreement with the results of B. V. Voyt-
sekhoskiy, V. V. Mitrofanov and M. Ye. Topchiyan (Struktura fronta detonatsii
v gazakh [Structure of the Detonation Front in Gases], Novosibirsk, Publishing
House of the Siberian Department of the Academy of Sciences USSR, 1963).
Especially good agreement was noted between the oscillograms and the pressures
calculated theoretically.

2/2

USSR

ASLANOV, S. K., KOPEYKA, P. I.

"Gas Dynamics of Spin Detonation"

Tr. II Resp. Konf. po Aero-gidromekh., Teploobmenu i Massoobmenu. Sekts. "Aerodinamika Bol'sh. Skorostey" [Works of II Republic Conference on Aero-Hydromechanics, Heat Exchange and Mass Exchange. Section on "Aerodynamics of High Velocities"], Kiev University Press, Kiev, 1971, pp 186-191, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 B149 by O. K. Rozanov).

Translation: In contrast to existing models, a plan for the nucleus of spin detonation is suggested, the basic element of which is the finite front of self-sustaining detonation located between the following generalized configurations of shock-detonation discontinuities at its ends: binary with combustion in the direct self-sustaining wave and trinary with combustion in two waves (direct transverse self-sustaining and slanted supercompressed). The leading process in the propagation of detonation spin is considered to be the self-sustaining detonation front which accelerates the combustion products to the speed of sound relative to its leading edge, so that the rarefaction waves following it have no influence on the detonation front.

Generalization of the configurations arising at the ends of the primary detonation wave consists in supplementary introduction to the plan of intersection of the waves of the reaction fronts and the centered rarefaction wave.

1/3

USSR

ASLANOV, S. K., KOPEYKA, P. I., Tr. II Resp. Konf. po Aero-gidromekh.,
Teploobmenu i Massoobmenu. Sekts. "Aerodinamika Bol'sh. Skorostey," Kiev
University Press, Kiev, 1971, pp 186-191.

The problem of construction of the structure of detonation spin is solved under
one additional condition: during propagation of spin detonation through the
tube, due to the absence of a summary moment of external forces, the momentum
should remain constant. In the planar case, this condition is reduced to the
condition that the projection on the plane of the cross section of the summary
momentum vector of the gas disappears in the area of the nucleus of spin de-
tonation. The initial data for calculation used were the Mach number of the
gas mixture and the slope of the trajectory of the trinary singular point to
the transverse cross section.
     The solution of the system of three transcendental equations with variable
adiabatic indices formed was produced by a combination of the method of suc-
cessive approximations with the coordination descent method. The results of
calculation of the parameters of the spin detonation nucleus for a mixture of
$2CO+O_2$, $2H_2+O_2$ and 6.7% C_2H_2+10% O_2+83.3% Ar are presented in a Table. Good

correspondence is noted between calculated values of pressure in all areas of
spin and experimental data produced by other authors. It is emphasized that
the slope angle of the incident shockwave to the transverse cross section of
2/3

-- 48 --

USSR

ASLANOV, S. K., KOPEYKA, P. I., Tr. II Resp. Konf. po Aero-gidromekh., Teploobmenu i Massoobmenu. Sekts. "Aerodinamika Bol'sh. Skorostey," Kiev University Press, Kiev, 1971, pp 186-191.

a tube was determined purely analytically for the first time. The values of slope agree satisfactorily with experimental data. 9 Biblio. Refs.

3/3

USSR   UDC 534.222.2

ASLANOV, S. K., KOPEYKA, P. I.

"Problem of Constructing the Closed Theory of Spinning Detonation"

V sb. 3-y Vses. simpozium po goreniyu i vzryvu, 1971 (Third All-Union Symposium
on Combustion and Explosion, 1971--collection of works), Chernogolovka, 1971,
pp 200-202 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B131)

Translation: A two-dimensional model of detonation spin was constructed in the
convolution plane of the inside surface of the detonation tube. It is proved
that the requirements of the conservation laws are satisfied only by introduc-
ing a self-similar expansion wave into this model in addition to the system of
compression shocks. The expansion wave is centered at the point of intersection
of the shocks and directly follows the Chapman-Jouguet detonation. On the basis
of this model, with the given initial state of the mixture, the axial propagation
rate of the spinning detonation and the rotation frequency of the spinning deto-
nation core, the angles of inclination of the shocks and other parameters of
the two dimensional structure of the detonation wave are calculated. The cal-
culated data are compared with the experimental data. Good comparison of these

1/2